

# STEVAL-SP1ML915; STEVAL-SP1ML868

USB dongle for SPIRIT1 low power RF modules SP1ML-868 and SP1ML-915

Data brief



#### **Features**

- Based on SPIRIT1 sub GHz modules SP1ML-868 and SP1ML-915
- USB interface and power supply
- RESET button
- On-board antenna
- RoHS compliant

### **Description**

The STEVAL-SP1ML868 and STEVAL-SP1ML915 boards are design tools that allow evaluation of ST's SP1ML-868 and SP1ML-915 low power RF modules in a quick and simple way.

The dongle includes the module to evaluate, an on-board RF antenna, and a USB connector. The USB connector is used to connect the dongle to a PC, to access the sub GHz RF module and to supply the dongle.

The STEVAL-SP1ML868 and STEVAL-SP1ML915 downloaded firmware enables the user to create a SPIRIT1 link using simple AT commands.

The SP1ML-based dongle is not qualified. It is a demonstration tool only, to be used strictly for evaluation purposes. It is not a product in itself.

# 1 Recommended operating conditions

Table 1: Recommended operating conditions

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
V <sub>DD</sub>	Board supply voltage	-20 °C < T < 70 °C	4.5	5	5.5	V
Тор	Operating case temperature range		-20		+70	°C

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### 2 Dongle layout

Figure 1: Dongle component layout, top side

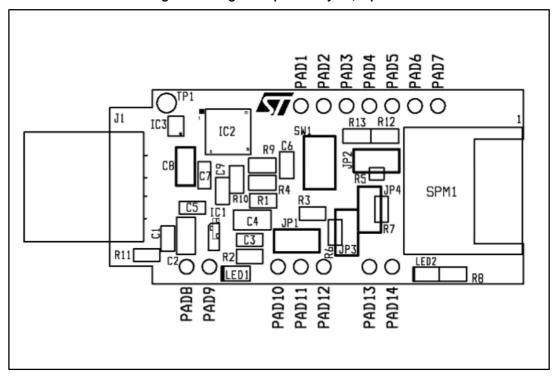
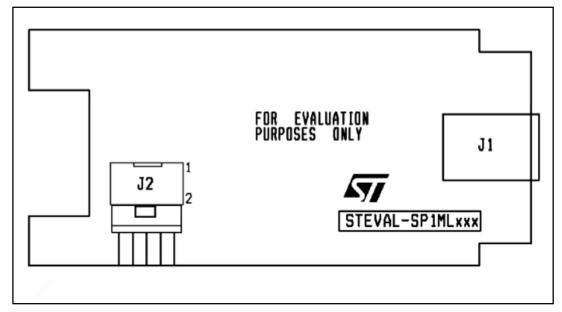


Figure 2: Dongle component layout, bottom side



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### 3 I/O Connections

#### 3.1 Pad references

In addition to the USB plug, several pads are also available. Pads 1 to 14 (indicated by the yellow boxes in the figure below) render the SP1ML-868 / SP1ML-915 module pins available to the user.

There are also six jumpers (indicated by red boxes) for current absorption purposes and for reprogramming the module firmware.

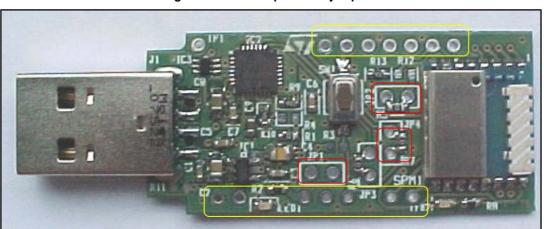


Figure 3: Available pads and jumpers

Table 2 provides a description of the pad connections.

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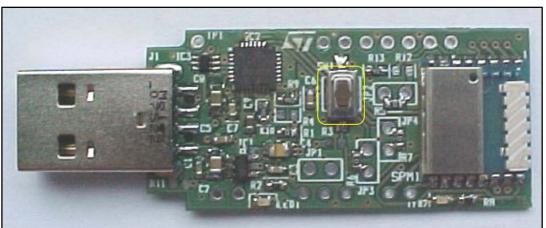
**Table 2: Pad connections** 

Description				
	1	GND (SP1ML-868 / SP1ML-915MODULE GND)		
	2	MODE0 SP1ML-868 / SP1ML-915 I/O signal		
	3	WKUP SP1ML-868 / SP1ML-915 signal (WAKE-UP high level digital voltage / SHUTDOWN low level digital voltage)		
	4	GPIO0 SP1ML-868 / SP1ML-915 programmable I/O signal		
	5	GPIO1 SP1ML-868 / SP1ML-915 programmable I/O signal		
	6	MODE1 SP1ML-868 / SP1ML-915 programmable I/O signal		
Pad	7	TxRx_LED SP1ML-868 / SP1ML-915 programmable I/O signal (LED2 is internally connected to this signal)		
Pau	8	GND		
	9	+5 V (USB)		
	10	+3.3 V		
	11	BOOT0 (boot pin used for firmware downloading - used for testin purpose)		
	12	Reset - connected in parallel to on-board reset switch		
	13	SWCLK SP1ML-868 / SP1ML-915 I/O signal (firmware dependent)		
	14	SWDIO SP1ML-868 / SP1ML-915 I/O signal (firmware dependent)		

### 4 Reset switch

A reset switch (SW1) is present on the dongle. When SW1 is pressed the SP1ML-868 / SP1ML-915 module is forced to reset.

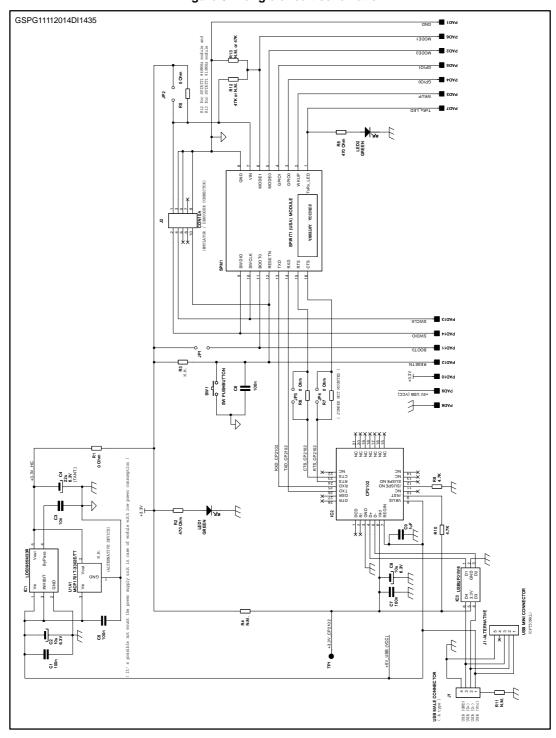




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# 5 Dongle schematics

Figure 5: Dongle circuit schematic



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# 6 Revision history

**Table 3: Document revision history** 

Date	Rev	Changes	
22-Jan-2015	1	First release.	

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